

the latter, then the punctures are, no doubt, true stings; and I make the alternative suggestion that the wasp is guided by its instinct—as the larva of the ichneumon is when feeding—to select for attack parts of its victim not vital, where the injected acid produces insensibility or partial muscular paralysis, but not death. Because in the rare cases in which a wasp or bee struggling in a spider's web succeeds in stinging his captor, in anger and at random, the spider dies. May the observation made in your columns by a recent correspondent, on the self-administration, through the mouth, of the poison of the sting by wasps and bees under chloroform not point to a stupefying property in the acid when taken, as the natives of India take the poison of venomous snakes, into the stomach, and not directly into the circulation of the blood? There is good work here for an observer with patience and a good field microscope.

Bregner, Bournemouth, October 19      HENRY CECIL

#### A Fossil Plant—Misquotation

IN an article on a fossil plant from the Isle of Man, in NATURE, vol. xviii. p. 555, the following sentence is attributed, apparently on the authority of Mr. Leo Lesquereux, to my report on the Devonian and upper silurian plants of Canada: "that these fragments are probably originating in the upper silurian of Gaspé; that as they are found in the lower part of the limestone which underlies the Devonian Gaspé sandstone and become more abundant in the upper beds, this suffices to indicate the existence of the neighbouring land, probably composed of silurian rocks and supporting vegetation."

On referring to the report in question, I find that the original of this strange statement stands as follows:—

"These remains of *Psilophyton* occur in the lower part of the limestone, but are more abundant in the upper beds, and they suffice to indicate the existence of neighbouring land, probably composed of lower silurian rocks, and supporting vegetation."

I have no doubt that Mr. Lesquereux quoted from memory, and probably supposed that he was expressing my meaning, but an English writer should have referred to the original.

I may add that the specimen referred to in Mr. Binney's article does not exhibit the characters of my genus *Psilophyton*, which does not contain "fucoids," but land plants of the rank of acrogens, and of which not merely the external forms, but also the internal structures are described and figured in the report referred to. The plant in question much more closely resembles *Butthollephis harknessii*, Nicholson, from the Skiddaw slates.

J. W. DAWSON

McGill College, Montreal, October 5

#### Sense of Fear in Chamæleons

DURING the past summer I have kept five chamæleons in captivity, and have repeatedly observed their terror and rage when confronted with snakes. When a large Algerian chamæleon (*C. vulgaris*), now in my possession, perceives a common snake (*Tropidonotus natrix*) wriggling in his vicinity, he at once inflates his body and pouch, sways himself backwards and forwards with considerable energy, or walks rapidly away with his body leaning over in the direction furthest from the snake, opening his huge cavernous mouth, and hissing and even snapping at what he evidently regards as his natural enemy. At the same time his body assumes an almost instantaneous change of colour, and is quickly covered with a large number of small dark brown spots. It is curious that similar symptoms of fear and anger are displayed when a lizard (*Lacerta viridis*), or even a tree-frog (*Hyla arborea*) is exhibited to him. The climax of grotesque nervousness was, however, reached one day, when the sight of a child's doll produced the like effect; in this case, it is probable that the glass eyes of the doll, giving to it the appearance of life, were what caused this terror in the reptile.

R. MORTON MIDDLETON, Jun.

West Hartlepool, October 23

#### An Unusual Rainbow

OCTOBER 28 was a fine day with a brisk westerly wind blowing. At 2 P.M. a splendid well-defined nimbus cloud passed from north-west to north-east, about a mile to the north of this observatory, and rapidly driving away before the wind, left a large tract of cloudless sky behind it, the sun shining at the time. Suddenly at 2.12 P.M. a magnificent rainbow shone out most brilliantly across

the blue space, the effect being exceedingly novel and charming. The veil of rain-drops forming the bow was so thin as to be invisible except near the zenith, where there appeared to be a thin cirrus. No rain fell on the observatory, and unfortunately there were no means of determining subsequently the area covered by the shower.

Eventually the rainbow faded away over the cloudless sky, and the 30° or so of the extreme eastern end which overlapped the receding nimbus shone out with a vivid brightness until it disappeared.

A secondary bow was not visible in front of the clear sky, but the violet band of the primary stood out with great distinctness, apparently separated from the remainder of the bow.

Kew Observatory, October 29

G. M. WHIPPLE

#### OUR ASTRONOMICAL COLUMN

A MISSING STAR.—There was a curious, and at the time suspicious, history attaching to an object, shining as a star of 9.10 magnitude, which was compared on several nights with the minor planet *Hygeia*, while under observation at Washington in the autumn of 1850. This star, which was designated *k* in a list published in Gould's journal, was missed by Mr. Hind, who reported the circumstance in a letter to Mr. W. C. Bond, of Harvard College, by whom the attention of Lieut. Maury, at that time superintendent of the Naval Observatory, Washington, was called to it. Mr. Ferguson having verified the disappearance of this object on August 29, 1851, a search was made for it on the assumption of it being a great planet exterior to Neptune; the reason for this assumption will be apparent from an inspection of the following positions, which result from the observations on three evenings:—

1850.	Washington Mean Time.	Right Ascension.	Declination.
	h. m. s.	h. m. s.	° ' "
Oct. 16 ...	6 52 36 ...	19 17 42.81 ...	-20 44 57.1
" 21 ...	7 6 40 ...	19 17 42.19 ...	-20 44 55.5
" 22 ...	6 35 35 ...	19 17 43.90 ...	-20 44 54.6

It was also observed on the 19th, but the accurate positions of the stars of comparison are not available. These observations appear to indicate that the object had motion in R.A., but that it was stationary at some time between October 16 and 22, and if we suppose it to have been a planet moving in a circular orbit, we find to allow of its being stationary at this elongation from the sun, its distance would be 49.94, and its period of revolution 351 years, or about twice the period of Neptune, and the period of Neptune is about twice that of Uranus. Notwithstanding the search was continued from August 29 to December 11, 1851, and extended to all stars of the eleventh magnitude between 19h. 20m. and 19h. 36m., and from -19° to -21° 20', no planetary body was found. That the Washington observers considered suspicion to attach to the object is obvious, but the only likely explanation appears to be that there was a variable star in this position, and that the observations in right ascension were affected with greater error than might be expected, considering that on two of the days of observation several comparisons were made. To our knowledge search was also made in Europe for the Washington star. Further particulars will be found in two letters from Maury, published in Gould's *Astronomical Journal*, No. 36.

THE SATURNIAN SATELLITE MIMAS.—From some Washington observations of this difficult object between the years 1874 and 1877, it appears that the following elements may be taken as approximately representing the motion of the satellite in the interval on the assumption of a circular orbit in the plane of the rings: epoch 1878, January 1.0207 G.M.T.,  $u = 0^{\circ} 0'$ ,  $N = 126^{\circ} 14' 5''$ ,  $i = 7^{\circ} 3' 2''$ , radius of orbit at the mean distance of Saturn  $27'' 40$ , period of revolution 22h. 37m. 5.614s., or the logarithm of the period in days = 9.9742473. The

general run of the differences between calculation and observation, incident probably in part to a sensible excentricity, may be judged from the following results of comparison with a few of the observations made with the great refractor at Washington:—

	Pos. (c - o)	Dist. (c - o)		Pos. (c - o)	Dist. (c - o)
1874 Sept. 2	+ 0°6	+ 0°28	1877 Aug. 11	+ 0°9	+ 1°13
„ „ 26	- 2°6	- 0°54	„ Oct. 15	+ 0°5	0°00
„ Oct. 15	+ 0°2	0°00	„ „ 16	- 1°2	...
1876 Oct. 13	+ 1°2	+ 0°45	„ „ 17	+ 4°1	+ 1°86
„ „ 31	- 1°3	+ 1°33			

From the above elements we shall find for the times of greatest elongation of Mimas eastward, 1878, October 31, at 10°4h., November 1 at 9°0h., November 2 at 7°6h., and November 3 at 6°2h., and at these times, the distance of the satellite from the centre of Saturn about 30".

### GEOGRAPHICAL NOTES

ADVICES from Mr. John Carnegie, H.B.M. Consul at Loanda, of September 9 ult., give most encouraging news with respect to Mr. Heath's expedition to Angola. The young explorer had enjoyed excellent health and had just started on a six months' expedition up the River Bengo, proceeding to Galungo Alto, and, if his health permitted, returning by the Quanza River. The first small collection of birds has been received from Matamba, on the Rio Bengo, an account of which will shortly be laid before the Zoological Society by Mr. Bowdler Sharpe. As the result of a first month's collecting it is creditable, but the season of the year having been adverse, nothing of any striking interest is contained in it. More may be expected from the large case of specimens now on its way to England.

MANY attempts have been made to penetrate into the interior of Greenland from the west coast, but, until this summer, with little success. Three Danish gentlemen, Messrs. Jensen, Kornerup, and Groth, under the direction of the Commission for scientific exploration in the Danish colony, started to explore and survey the coast between Godhaab and Frederikshaab. Lieut. Jensen took advantage of the opportunity to make an excursion into the interior over the ice. The aim was to reach several mountain peaks rising out of the ice. The baggage was placed in three small sledges of the travellers' own, and the toilsome journey commenced on July 14. After two days the loose snow accumulated on the surface of the ice to such an extent that the journey became very dangerous, while they continually sank in concealed crevasses and holes, saving themselves only by adopting the Alpine expedient of attaching themselves to each other with a rope. The surface of the ice was generally undulating, but there were also many rugged parts and chasms, which rendered the journey a very difficult one. It was foggy nearly the whole time, and on July 23 a snowstorm came on. On the 24th the expedition reached the foot of the mountain referred to above. Then came on another storm which lasted for six days with continuous snow and fog; the travellers were snow blind. The weather cleared on the 31st, when the ascent of the mountain might be undertaken with some prospect of success. The height was estimated at about 5,000 feet above sea level, and on the other side of the mountain, as far as the eye could reach, ice sheets and glaciers were seen, and not the smallest speck of land free of ice. After finishing their observations the expedition returned, and reached their starting-point on August 5, having been away for twenty-three days. The mountain referred to was forty-five miles from the coast.

THE discovery of a new island in the Polar Seas is announced. E. Johannessen, who has just returned to Tromsø, reports that he penetrated a considerable dis-

tance to the east, beyond Novaya Zemlya. On September 3, in long. 66° E. and 77° 35' N. lat., he discovered an island which he has named "Ensomheden" (loneliness). It is about ten miles long, and level, the highest point not exceeding 100 feet. It was free from snow, with poor vegetation, but an immense quantity of birds. The sea was free from ice towards the west, north, and south, but drift ice was seen towards the south-east. There was evidence that the Gulf Stream touched the west coast of the island; the Stream runs in a strong current round the north coast towards the south-east. Everything about the ice was favourable for navigation so long as the vessel did not go too near the mainland of Siberia. The newly-discovered island lies, therefore, somewhat to the south-east of the region visited by the Austrian expedition of 1873-4. It has been thought probable that a line of islands in the latitude of this island extends along the north coast of Asia.

NEWS has been received from Prof. Bastian, of Berlin, that he safely arrived at Bushire, on the Persian Gulf, via Teheran and Ispahan, and that he has thence continued his journey by sea.

LIEUT. SANDEBERG, whose explorations in the Kola Peninsula and the White Sea we have already referred to, has returned to Sweden with numerous zoological collections obtained during the past summer. Lieut. Sandeberg finds the coast-waters between Varanger Fjord and the White Sea extraordinarily rich in cod and whales.

THE *Deutsche Geographische Blätter* of the Bremen Society, No. 4, contains several items of interest, some of which we note separately. There is a long and valuable paper by Prof. Struder on a visit he made to Timor in 1875, and another on the results of the numerous voyages to Siberia made this summer, all of which have been so eminently successful that a regular summer trade-route to the great Siberian rivers may now be held as established.

THE *Bulletin* of the Geographical Society of Marseilles for July-August contains an interesting account of the little-known Island of Lamoo, on the African coast, a few degrees north of Zanzibar. The island itself is described, and a pretty full account given of its inhabitants and their habits.

A TELEGRAM from Hong-Kong states that the Chinese authorities are contemplating the construction of a railway from Taku to Tientsin, in order to facilitate communication with the capital and to avoid the difficulties to navigation caused by the tortuous course of the Pei-ho. A rumour from the north in regard to this scheme was published in the *North China Herald* of Shanghai, on August 10, "with all due reservation," as it appeared almost too good to be true. Our contemporary says that the plan is believed to have been agreed upon last year, but delayed in execution because it had been hoped that the plant of the condemned Shanghai and Woosung railway could have been made partly available for the purpose. This having been otherwise disposed of, it is said to have been now determined to purchase new plant throughout, and to press forward with the new line as quickly as possible. Mr. Tong Kingsing, a well-known Cantonese merchant, frequently employed by Li Hung-chang, who is said to be the prime mover in this matter, has been at the coal-mines in the north-east of the province of Chihli for some time, but he is expected to return to Tientsin shortly, when it is believed that immediate steps will be taken concerning the new line.

THE Society of Geography of Paris held its first meeting for the year 1878-1879 on Wednesday week, in its new hotel, Boulevard St. Germain, No. 194. The number of members present exceeded 200. M. Quatrefages, president of the Section Centrale, was in the chair, and gave an address, in which he congratulated his fellow members.